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PATENT SPECIFICATION



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COMPLETE SPECIFICATION

An improved Disc-like Seal or Gasket for Closing Bottles, Flasks or like Containers

We, RICAL, a Body Corporate organised and existing under the laws of France, of 48, Quai Nicolas Rollin, Dijon, France, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention provides an improved disc-like seal or gasket for closing bottles or flasks or other containers, particularly a seal or gasket made of any plastic material possessing a certain degree of rigidity or stiffness, such as the materials known as "Rilsan" or "Nylon."

It is difficult, owing to their lack of flexibility, to obtain a tight seal with such materials by the use of a plain, flat washer or gasket. On the other hand, once having been forced into place by pressure, such a gasket remains distorted so that it is unsuitable for use with a screw cap intended for repeated closure.

The improved disc-like seal or gasket, which has been particularly designed with a view to avoiding these drawbacks, is essentially characterised in that its edge or circumference is made with a groove forming two thin lips flexibly connected with the central portion, the depth of such groove being at least equal to the thickness of the neck of the bottle or other container to be closed.

Within the scope of this general characteristic the seal or closure of the invention may possess all or some of the following features:—

(a) the radial cross-section of the groove above-mentioned may be essentially trapezoidal in cross-section with the shorter base rounded;

(b) the disc or central part of the seal or gasket and its grooved part may have a common plane of symmetry;

(c) such disc or central part may be of lesser thickness than the total thickness of the seal or gasket.

(d) such disc or central part may be connected above and below to the circumferential edge by a rounded fillet, preferably concentric with the end or rounded bottom of the groove;

(e) the depth or radial dimension of the groove may be greater than the thickness of the neck of the bottle or container to be sealed in such a manner that the attachment of said lips to the disc or central portion are inside such neck when the seal or gasket is compressed.

By way of example one form of seal or gasket according to the invention is illustrated on the accompanying drawing.

Fig. 1 of the drawing shows the seal or gasket half in elevation and half in medial cross section.

Fig. 2 is a half plan view.

Fig. 3 is a partial cross-section, on a larger scale, showing the seal or gasket when compressed in its working position.

Reference 1 denotes the disc-like seal or gasket generally, 2 its circumferential groove, and 3 the two lips which are situated one on either side of the groove and are thus flexibly linked or articulated to the disc or central part 1a of the seal or gasket.

Preferably and if only for convenience in moulding, the groove 2 has essentially a trapezoidal form in cross-section, the shorter base being however rounded at 2a in such a manner that the lips 3 have a thickness that slightly diminishes radially towards the circumference.

Preferably also the disc or central portion 1a has a thickness less than that of the seal or gasket as a whole, and is connected with the circumferential edge by rounded fillets 4 suitably concentric with the rounded bottom 2a of the groove 2.

Preferably also the disc or central portion 1a and the groove 2 have a common plane of symmetry in such a manner that the gasket is reversible.

Advantageously (see Fig. 3) the depth or radial extension of the groove 2 is much greater than the thickness of the neck of the bottle or container so that the articulations or points of attachment of the lips 3 to the disc or central portion 1a are inside the said neck and form a bead when the gasket is compressed. This avoids the possibility of these attachments breaking or tearing when the gasket is pressed into place. Furthermore, the lower of the lips 3 can then fit

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better round the radius r of the edge of the neck.

It will be noted that in the illustrated form the two lips 3, tapering from the centre to the edge, are only in contact with each other over a part of their width, when the gasket is compressed, their edges being slightly apart. However, this is without significance for the tightness of the closure. Such parting of the edges may in fact be dispensed with; for instance by giving the inner surface of the cap C a certain amount of taper.

A seal or gasket as described will be found particularly suitable for use with screw caps such as shown in Fig. 3 since, upon being opened, the gasket resumes its original shape and can thus be used repeatedly; but it can, of course, also be used with crimped caps.

In view of the special shape of the edge of the seal or gasket it can, without being excessively heavy, be made of a total thickness equal to that of the usual seals or gaskets of the same diameter; thus permitting it to be used in the same machines, if sealing is performed automatically.

What we claim is:—

1. A disc-like seal or gasket of plastic material of some degree of stiffness for sealing bottles, flasks or other containers, characterised in that its edge or circumference has in its thickness a groove forming two thin lips articulated or attached to the central part, the depth of such groove being not less

than the thickness of the neck of the bottle or container to be closed.

2. A seal or gasket in accordance with Claim 1, characterised in that the groove has a radial cross-section of substantially trapezoidal form the smaller base of which is rounded.

3. A seal or gasket in accordance with Claim 1 or 2, characterised in that its central part and its grooved part have a common plane of symmetry.

4. A seal or gasket in accordance with any of Claims 1 to 3, characterised in that the disc or central part is of lesser thickness than the seal or gasket as a whole.

5. A seal or gasket in accordance with any of Claims 1 to 4, characterised in that its central part is attached above and below to the circumferential part or edge by means of rounded fillets.

6. A seal or gasket in accordance with any of Claims 1 to 5, characterised in that the depth or radial extension of the groove is greater than the thickness of the neck of the bottle or container to be closed in such a manner that the attachment of the lips to the central part are inside said neck when the seal or gasket is compressed.

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Fig. 1.

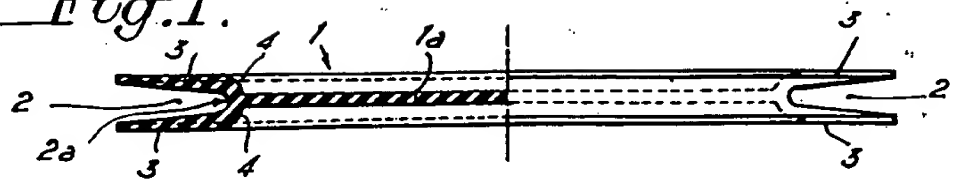


Fig. 2.

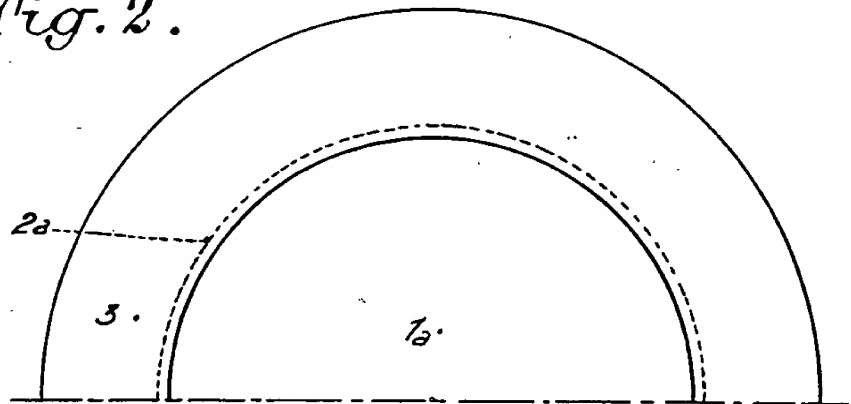


Fig. 3.

